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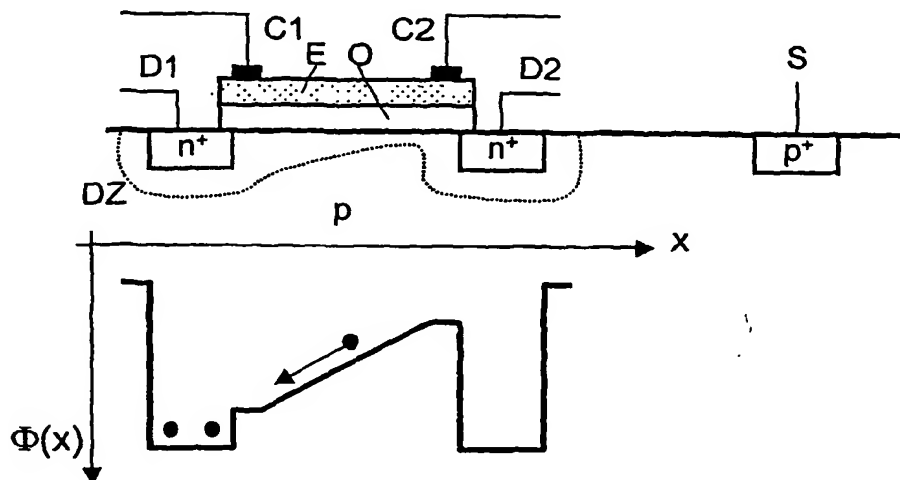
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(54) Title: IMAGE SENSING DEVICE AND METHOD OF



(57) Abstract: A two-dimensional, temporally modulated electromagnetic wavefield, preferably in the ultraviolet, visible or infrared spectral range, can be locally detected and demodulated with one or more sensing elements. Each sensing element consists of a resistive, transparent electrode (E) on top of an insulated layer (O) that is produced over a semiconducting substrate whose surface is electrically kept in depletion. The electrode (E) is connected with two or more contacts (C1; C2) to a number of clock voltages that are operated synchronously with the frequency of the modulated wavefield. In the electrode and in the semiconducting substrate lateral electric fields are created that separate and transport photogenerated charge pairs in the semiconductor to respective diffusions (D1; D2) close to the contacts (C1; C2). By repetitively storing and accumulating photocharges in the diffusions (D1; D2), electrical signals are generated that are subsequently read out for the determination of local phase shift, amplitude and offset of the modulated wavefield.